

## REMARKS/ARGUMENTS

In the Office Action of January 5, 2010, claims 1-3 and 5-12 were rejected. In response, new claims 13-21 have been added. Support for claims 13-19 is found in Applicants' specification at, for example, Figs. 2, 10 and 11, page 5, line 33-page 6, line 26, and page 10, line 4-page 11, line 26. Support for claims 20 and 21 is found in the current Application at, for example, original claims 1, 2, 5 and 6. Applicants hereby request reconsideration of the application in view of the new claims and the below-provided remarks.

### Claim Rejection under 35 U.S.C. 103

Claims 1-3, 5-9 and 11 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Pellerin et al. (WO 02/075781 A2, hereinafter "Pellerin") in view of Krivokapic (U.S. Pat. No. 6,888,198). Claims 10 and 12 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Pellerin in view of Krivokapic, and further in view of Yang et al. (U.S. Pat. Pub. No. 2003/0162359, hereinafter "Yang"). However, Applicants respectfully submit that the pending claims are patentable in view of the cited references for the reasons provided below.

### Independent Claim 1

Applicants respectfully assert that the teachings of Pellerin in view of Krivokapic are not sufficient to establish a *prima facie* case of obviousness with respect to claim 1. Specifically, Applicants respectfully submit that the alleged reasoning provided in the Office Action to support the asserted conclusion of obviousness is not based on a rational underpinning.

In order to establish a *prima facie* rejection of a claim under 35 U.S.C. 103, the Office Action must present a clear articulation of the reason why the claimed invention would have been obvious. MPEP 2142 (citing *KSR International Co. v. Teleflex Inc.*, 550 U.S. (2007)). The analysis must be made explicit. *Id.* Additionally, rejections based on obviousness cannot be sustained by mere conclusory statements; instead there must be

some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. Id.

The alleged reasoning provided in the Office Action to support the asserted conclusion of obviousness is found on pages 3 and 4, which states:

“It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the L-shape of the side wall of Krivokapic in Pellerin, order to achieve the device properties.

Furthermore, the change in shape of the the side wall spacer was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the side wall spacer was significant. See *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).” (emphasis added)

Thus, the Office Action suggests that providing “the L-shape of the side wall of Krivokapic in Pellerin” is obvious in order to “achieve the device properties” (emphasis added). However, the Office Action does not describe what the achieved device properties are. Additionally, the Office Action does not describe how combining the L-shape of the side wall of Krivokapic into Pellerin would achieve such device properties. The Office Action merely provides a vague conclusory statement to support the asserted conclusion of obviousness. Because the Office Action fails to describe what the achieved device properties are and how combining the L-shape of the side wall of Krivokapic into Pellerin would achieve such device properties, the alleged reasoning provided in the Office Action to support the asserted conclusion of obviousness is not based on a rational underpinning.

Additionally, Applicants respectfully submit that there is persuasive evidence in Applicants’ specification that the L-shape of the side wall spacer is significant. For example, Applicants’ specification describes that the L-shaped side wall spacer has the advantage that the dimensions of the amorphous region can be controlled so that the extension of the amorphous region under the side wall spacer is provided in a controlled manner. As a result, the silicide region is formed over a longer distance under the side wall spacers. (See Applicants’ specification at Fig. 11, page 2, lines 26 and 27, page 4, lines 12-14, page 10, lines 20-26, and page 11, lines 20-22.) Because there is persuasive evidence in Applicants’ specification that the L-shape of the side wall spacer is significant, the change in the shape of the side wall spacers is not a matter of obvious

choice. Thus, the alleged reasoning provided in the Office Action to support the asserted conclusion of obviousness is not based on a rational underpinning.

Accordingly, Applicants respectfully submit that the alleged reasoning is not based on a rational underpinning. Because the alleged reasoning is not based on a rational underpinning, Applicants respectfully assert that a *prima facie* case of obviousness has not been established with respect to claim 1.

#### Dependent Claims 2, 3 and 5-12

Claims 2, 3 and 5-12 depend from and incorporate all of the limitations of independent claim 1. Thus, Applicants respectfully assert that claims 2, 3 and 5-12 are allowable at least based on an allowable claim 1. Additionally, claim 5 is allowable for further reasons, as described below.

Applicants respectfully assert that the teachings of Pellerin in view of Krivokapic are not sufficient to establish a *prima facie* case of obviousness with respect to claim 5. Claim 5 recites in part that “*the second portion of the L-shaped side wall spacer has a thickness, measured in a direction perpendicular to the surface of the semiconductor body, of maximally 40 nm*” (emphasis added). Pellerin and Krivokapic are silent as to the thickness of “*the second portion of the L-shaped side wall spacer*” of claim 5. Even the Office Action acknowledges that “Pellerin and Krivokapic may not explicitly teach the second portion of the L-shaped side wall spacer has a thickness, measured in a direction perpendicular to the surface of the semiconductor body, of maximally 40 nm.” (See pages 4 and 5 of the Office Action). However, the Office Action further states that “[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to provide certain measurement...” (See pages 4 and 5 of the Office Action).

MPEP § 2144.04(IV)(A) states:

In *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. (emphasis added)

Applicants respectfully assert that a semiconductor device having the claimed relative dimensions performs differently than a device without the claimed relative

dimensions. For example, Applicants' specification at Fig. 11 and page 11, lines 6-8, describes that, compared to an L-shaped sidewall spacer with a second portion, which extends along a surface of a semiconductor body, that has a thickness of more than 40nm, an L-shaped sidewall spacer with a second portion that has a thickness of maximally 40 nm prevents an effect of an amorphization implantation from getting too low and results in an improved operation of a semiconductor device. Because a semiconductor device having the claimed relative dimensions performs differently than a device without the claimed relative dimensions, Applicants respectfully assert that the teachings of Pellerin in view of Krivokapic are not sufficient to establish a *prima facie* case of obviousness with respect to claim 5. Thus, Applicants respectfully assert that claim 5 is not obvious over Pellerin in view of Krivokapic.

#### New Claims 13-21

New claims 13-21 have been added. Claims 13-21 depend from and incorporate all of the limitations of independent claim 1. Thus, Applicants respectfully assert that claims 13-21 are allowable at least based on an allowable claim 1. Additionally, claims 13-19 are allowable for further reasons, as described below.

#### Claims 13 and 14

Claim 13 recites in part that “*the side wall spacer is configured to directly contact the entire surface of a side of the gate*” (emphasis added). Claim 14 recites in part that “*the side wall spacer is configured to contact the entire surface of a side of the gate without an intervening structure*” (emphasis added). Applicants respectfully assert that Pellerin in view of Krivokapic does not teach the above-identified limitations of claims 13 and 14.

The Office Action suggests that a gate electrode (46) of Pellerin is equivalent to the “gate” of claim 1. (See pages 2 and 3 of the Office Action). The Office Action also suggests that a second sidewall spacer (52) of Pellerin is equivalent to the “side wall spacer” of claim 1. (See pages 2 and 3 of the Office Action).

However, as shown in Fig. 2D of Pellerin, the second sidewall spacer (52) only contacts a corner of a side of the gate electrode (46). Additionally, as shown in Fig. 2D

of Pellerin, a sidewall spacer (40A) is located between the second sidewall spacer (52) and the gate electrode (46). (See also page 6, lines 13-19 of Pellerin). As a result, Pellerin does not teach that the second sidewall spacer (52) directly contacts the entire surface of a side of the gate electrode (46). Thus, Applicants respectfully assert that Pellerin in view of Krivokapic does not teach that “*the side wall spacer is configured to directly contact the entire surface of a side of the gate*” (emphasis added), as recited in claim 13. Additionally, Pellerin does not teach that the second sidewall spacer (52) contacts the entire surface of a side of the gate electrode (46) without an intervening structure. Thus, Applicants respectfully assert that Pellerin in view of Krivokapic does not teach that “*the side wall spacer is configured to contact the entire surface of a side of the gate without an intervening structure*” (emphasis added), as recited in claim 14.

#### Claims 15-18

Claim 15 recites in part “*an insulation layer that is located below the gate, wherein the side wall spacer is configured to directly contact the insulation layer*” (emphasis added). Claim 16 recites in part “*an insulation layer that is located below the gate, wherein the gate comprises a conductive layer and a silicide layer, and wherein the side wall spacer is configured to directly contact the insulation layer, the conductive layer and the silicide layer*” (emphasis added). Claim 17 recites in part “*an insulation layer that is located below the gate, wherein the gate comprises a metal conductive layer, and wherein the side wall spacer is configured to directly contact the insulation layer and the metal conductive layer*” (emphasis added). Claim 18 recites in part “*an insulation layer that is located below the gate, wherein the gate comprises a conductive layer that is made of polycrystalline silicon, and wherein the side wall spacer is configured to directly contact the insulation layer and the conductive layer.*” Applicants respectfully assert that Pellerin in view of Krivokapic does not teach the above-identified limitations of claims 15-18.

As described above, the Office Action suggests that the gate electrode (46) of Pellerin is equivalent to the “*gate*” of claim 1 and that the second sidewall spacer (52) of Pellerin is equivalent to the “*side wall spacer*” of claim 1. (See pages 2 and 3 of the Office Action). Pellerin teaches that a gate insulation layer (48) is located below the gate

electrode (46). (See Fig. 2D and page 7, lines 9-18 of Pellerin). However, Pellerin teaches that the second sidewall spacer (52) does not directly contact the gate insulation layer (48). (See Fig. 2D of Pellerin). Thus, Applicants respectfully assert that Pellerin in view of Krivokapic does not teach the above-identified limitations of claims 15-18.

#### Claim 19

Claim 19 recites in part that “*the second portion of the L-shaped side wall spacer has a thickness, measured in a direction perpendicular to the surface of the semiconductor body, of 5 to 20 nm*” (emphasis added). As described above with respect to claim 5, Pellerin and Krivokapic are silent as to the thickness of “*the second portion of the L-shaped side wall spacer*” of claim 5. Thus, Applicants respectfully assert that Pellerin and Krivokapic are also silent as to the thickness of “*the second portion of the L-shaped side wall spacer*” of claim 19. As a result, Applicants respectfully assert that Pellerin in view of Krivokapic does not teach the above-identified limitation of claim 19.

## CONCLUSION

Applicants respectfully request reconsideration of the claims in view of the new claims and the remarks made herein. A notice of allowance is earnestly solicited.

Respectfully submitted on behalf of:

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